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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/499,450	02/07/2000	Theodore M. Garver	51-06 US CIP	1302

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EXAMINER

SMITH, ZANDRA V

ART UNIT

PAPER NUMBER

2877

DATE MAILED: 10/03/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/499,450

Applicant(s)

GARVER ET AL.

Examiner

Zandra V. Smith

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on _____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-42 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 10-12, 27-30, 35-37 and 40-42 is/are rejected.
- 7) ☒ Claim(s) 4-9, 13-26, 31, 38 and 39 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2,3. 6) ☐ Other: _____

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 36 and 42 are rejected under 35 U.S.C. 102(b) as being anticipated by *Clarke* (5,139,334).

As to **claims 36 and 42**, Clarke discloses a system for hydrocarbon analysis of a sample based on low resolution Raman spectral analysis, comprising;

a laser light (12) for generating a Raman spectrum;

a detector (16B) for detecting Raman emitted light; and

a processor (24) for formulating a relationship by comparing a ratio (col. 3, line 65-col. 4, line 20).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2, 10-12, 27-30, 35, and 40-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Clarke* (5,139,334) in view of *Yamaguchi et al* (EP 714,025 A1), cited by applicant.

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As to **claims 1-2 and 35**, Clarke discloses a system for hydrocarbon analysis of a sample based on low resolution Raman spectral analysis, comprising;

irradiating a portion of a sample with laser light for generating a Raman spectrum;

obtaining two measurements at two different wavenumbers from the Raman spectrum;

and

formulating a relationship by comparing a ratio (col. 3, line 65-col. 4, line 20). Clarke differs from the claimed invention in that the amount of hydrogen peroxide is not determined, however the use of Raman spectral analysis to determine the concentration of hydrogen peroxide in a sample is well known as taught by Yamaguchi. Yamaguchi discloses a system for determining hydrogen peroxide by Raman scattering (title). It would have been obvious to one having ordinary skill in the art at the time of invention to modify the system of Clarke to determine the concentration of hydrogen peroxide since it would allow direct determination of hydrogen peroxide without reaction error.

As to **claim 10**, the system of Clarke and Yamaguchi discloses everything claimed, as applied above, with the exception of the analysis techniques, however since the methods are well known and since it has been held that the selection of a known material on the basis of its suitability for the intended use is within the level of ordinary skill for a worker in the art and since non-linear methods may be used for deconvolution of the spectra into separate components, it would have been obvious to one having ordinary skill in the art at the time of invention to use non-linear techniques.

As to **claims 11-12 and 40-41**, Clarke discloses a system for hydrocarbon analysis of a sample based on low resolution Raman spectral analysis, comprising;

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irradiating a portion of a sample with laser light for generating a Raman spectrum;
obtaining two measurements at two different wavenumbers between $200^{\text{cm}^{-1}}$ and $4000^{\text{cm}^{-1}}$
from the Raman spectrum; and
formulating a relationship by comparing a ratio (col. 3, line 65-col. 4, line 20).

Clarke differs from the claimed invention in that the amount of hydrogen peroxide is not determined, however the use of Raman spectral analysis to determine the concentration of hydrogen peroxide in a sample is well known as taught by Yamaguchi. Yamaguchi discloses a system for determining hydrogen peroxide by Raman scattering (title). It would have been obvious to one having ordinary skill in the art at the time of invention to modify the system of Clarke to determine the concentration of hydrogen peroxide since it would allow direct determination of hydrogen peroxide without reaction error. Additionally, Clarke differs in that a non-linear relationship is not specifically determined, however since the methods are well known and since it has been held that the selection of a known material on the basis of its suitability for the intended use is within the level of ordinary skill for a worker in the art and since non-linear methods may be used for deconvolution of the spectra into separate components, it would have been obvious to one having ordinary skill in the art at the time of invention to use non-linear regression techniques.

As to **claim 27**, Clarke discloses a system for hydrocarbon analysis of a sample based on low resolution Raman spectral analysis, comprising;

irradiating a portion of a sample with laser light for generating a Raman spectrum;
obtaining two measurements at two different wavenumbers from the Raman spectrum;
and

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formulating a relationship by comparing a ratio (col. 3, line 65-col. 4, line 20). Clarke differs from the claimed invention in that a potential of an oxidative reductive process is not determined, however Yamaguchi discloses a system for determining hydrogen peroxide by Raman scattering (title) and the amount of hydrogen peroxide in the sample is directly related to the oxidative reductive process. It would have been obvious to one having ordinary skill in the art at the time of invention to use the system of Clarke to determine a potential of an oxidative reductive process since the amount of hydrogen peroxide in the system is related to the oxidative process.

As to **claim 28**, the system of Clarke and Yamaguchi discloses everything claimed, as applied above, in addition Raman intensities are measured (col. 3, line 65-col. 4, line 20).

As to **claim 29**, the system of Clarke and Yamaguchi discloses everything claimed, as applied above, in addition a ratio is determined based on two measurements (col. 4, lines 15-20).

As to **claim 30**, the system of Clarke and Yamaguchi discloses everything claimed, as applied above, with the exception of the use of a Nernst equation, however since it has been held that the selection of a known material on the basis of its suitability for the intended use is within the level of ordinary skill for a worker in the art, the use of a Nernst equation would have been obvious to one having ordinary skill in the art at the time of invention.

Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Clarke (5,139,334)*.

As to **claim 37**, Clarke discloses everything claimed, as applied above, with the exception of the analysis techniques, however since the methods are well known and since it has been held that the selection of a known material on the basis of its suitability for the intended

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use is within the level of ordinary skill for a worker in the art and since non-linear methods may be used for deconvolution of the spectra into separate components, it would have been obvious to one having ordinary skill in the art at the time of invention to use non-linear techniques.

Allowable Subject Matter

Claims 3-9, 13-26, 31-34, 38-39 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: the prior art of record, taken alone or in combination, fails to disclose or render obvious varying the amount of peroxy ion by varying the pH of a solution, determining a characteristic of a pulp, a third measurement, or expression of the non-linear relationship.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Dou et al. (5,617,205) discloses a spectral measuring system.

Fax/Telephone Information

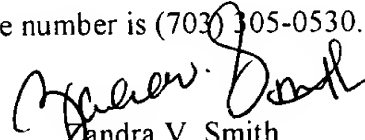
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zandra V. Smith whose telephone number is (703) 305-7776. The examiner can normally be reached on 8:00 a.m. - 4:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on (703)308-4881. The fax phone numbers for the

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organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-0530.



Zandra V. Smith
Examiner
Art Unit 2877

September 30, 2002